

SMART TARGETED NANOTHERAPY FOR BREAST CANCER USING RGD-FUNCTIONALIZED ZIF-8 REPURPOSE MESALAMINE

Nur Airin Syahira Johari, Mostafa Yousefzadeh Borzehandani, Gaayatri Silvaraju, Mohd Akmal Azhar, Norazalina Saad, Rosniza Razali and **Nurul Akmarina Mohd Abdul Kamal***
nurulakmarina@umpsa.edu.my

SCAN ME



for full paper

THE CHALLENGE



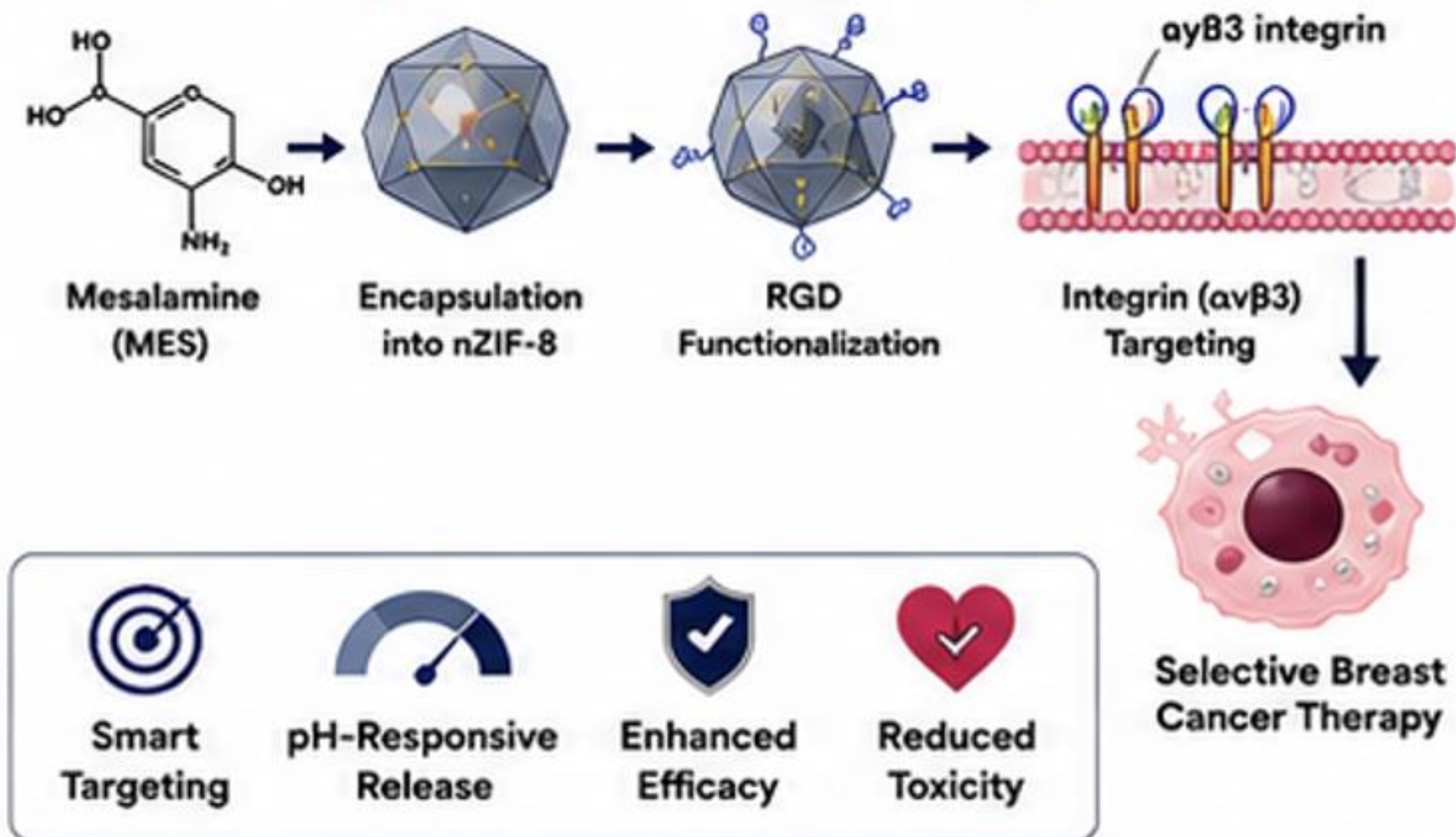
BREAST CANCER

- 2.3 million new cases worldwide (2020)
- Chemotherapy lacks selectivity
- Severe off-target toxicity
- Mesalamine (MES) shows anticancer potential but poor systemic bioavailability



OUR SOLUTION

Repurposing Mesalamine Through Smart Nanoengineering



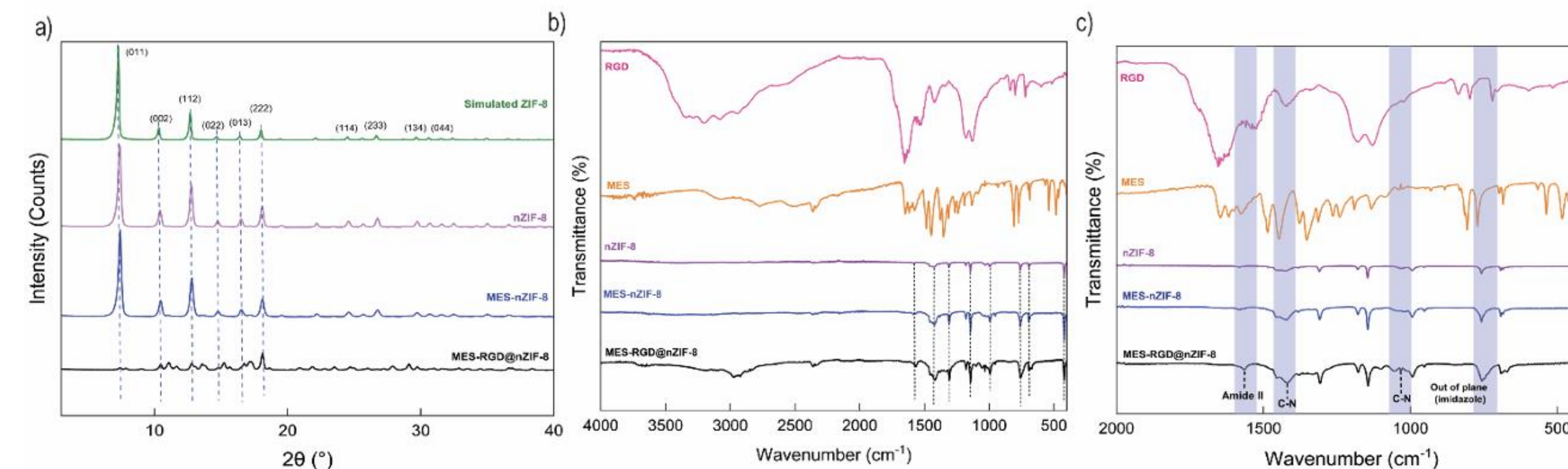
REFERENCE

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<https://doi.org/10.1039/D6DT00199H>, with permission from the Royal Society of Chemistry

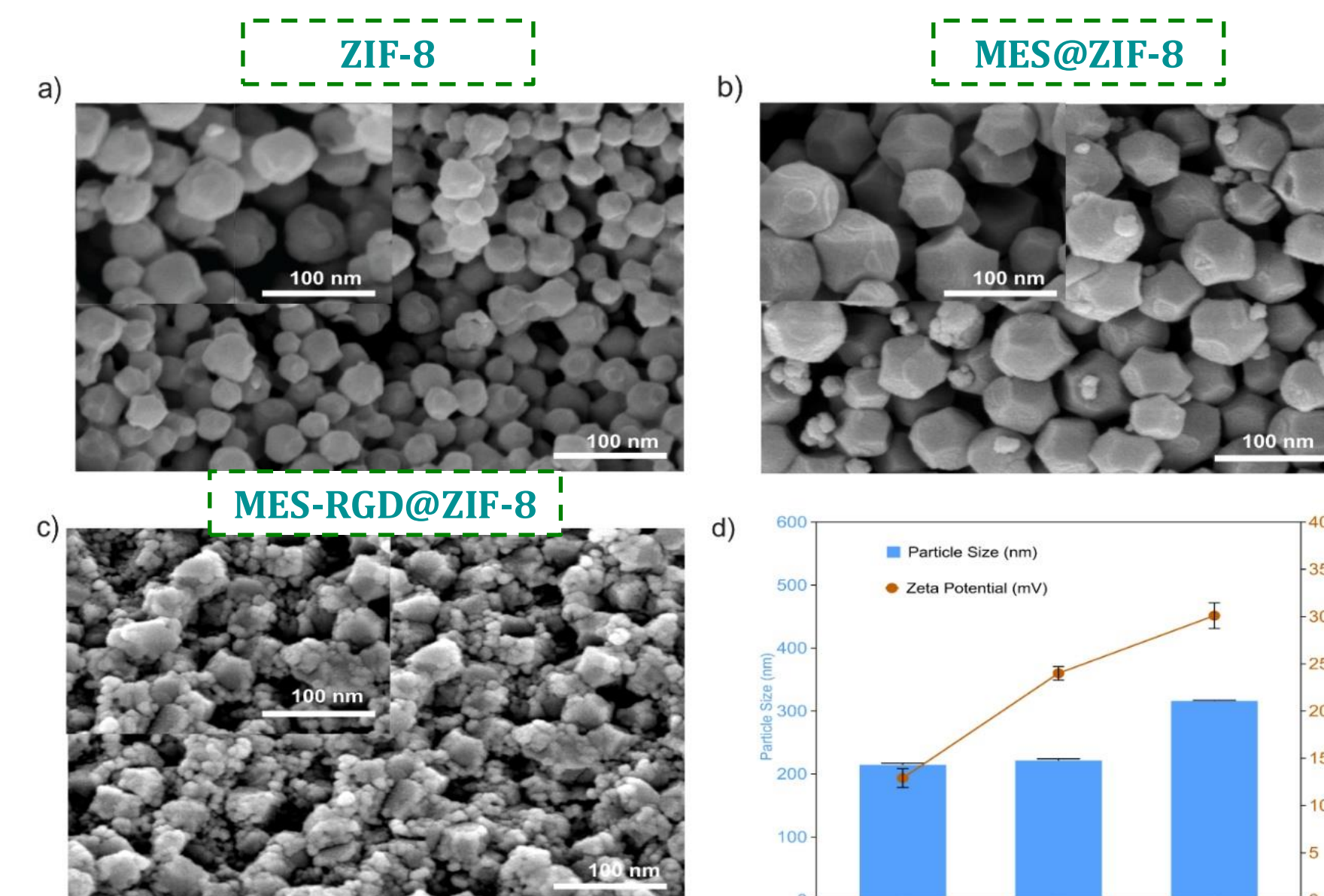
RESULTS

ENGINEERING THE NANOCARRIER

Successful drug loading and peptide functionalization

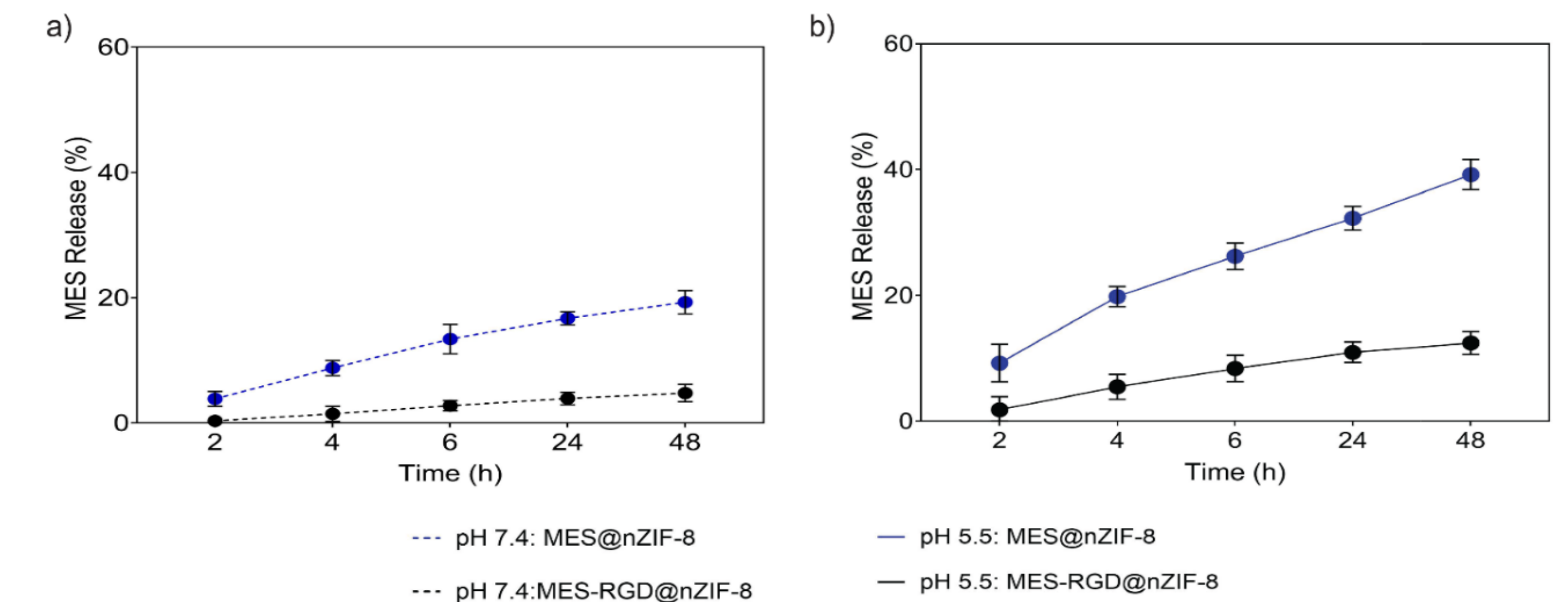


PXRD diffraction peaks were well retained. FTIR evidence for chemical bond formation.



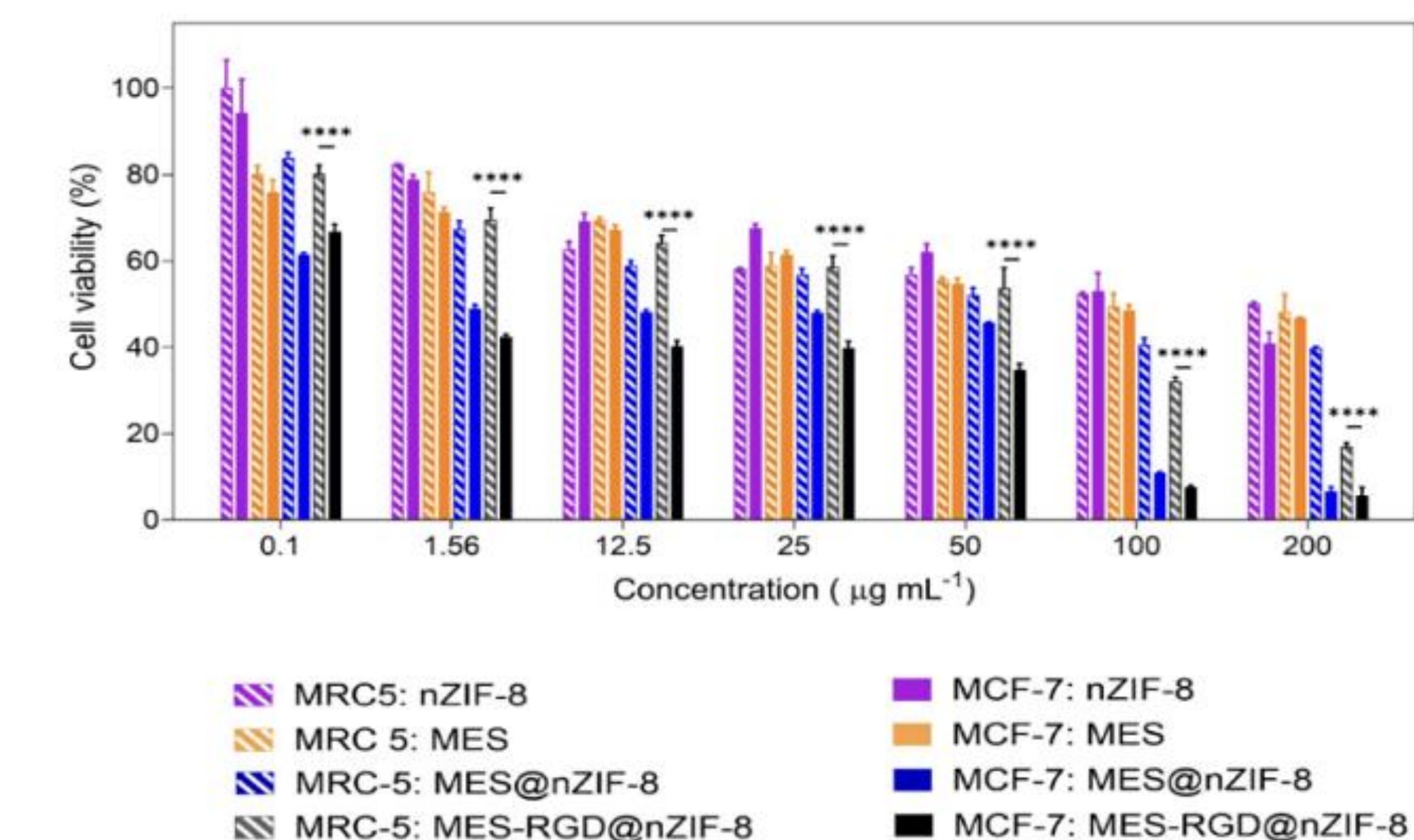
Encapsulation Efficiency	99.69%
Loading Capacity	26.59%
Particle Size (DLS)	175 ± 23.9 nm
Zeta Potential	Increased after RGD

SMART PH-RESONSIVE



ENHANCED TOXICITY & SELECTIVITY

Towards breast cancer cells



Selectivity Index(SI)

4.53

Good selectivity
towards
breast ancer cell



CONCLUSION



DRUG REPURPOSING
Transforms an anti-inflammatory drug (mesalamine) into an effective anticancer agent.



PRECISION NANOMEDICINE
RGD-functionalization enables integrin-targeted delivery to breast cancer cells.



REDUCED OFF-TARGET TOXICITY
Higher selectivity index (4.53) confirms safer profile toward normal cells.



SMART & RESPONSIVE
pH-responsive release ensures more drug release in tumor environment for enhanced efficacy.